Industrial Group's Productive and Financial Investment Strategies

Tests on SBF250 Panel Data with First-Difference GMM Estimator 1989-2007*

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Abstract

Evolution of the firms' investment behaviour is interpreted by heterodox theories as the resultant of the financialisation of the accumulation regime. The French School of Regulation speaks thus about patrimonial capitalism. Strategies of productive and financial investments, and the way of financing such activities, respond to increased shareholder requirements about the return of the invested funds. In order to check these assumptions, tests on panel data are carried out starting from a sample on great French groups, quoted on the SBF 250 Index.

Keywords: Finance; Investment; Rate of Profit; Growth Regime; Panel data
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Introduction

The econometric tests about the determinants of the companies' investments are numerous, in particular for tests based on national accounting data. With regard to works on panel data, many are those bearing on estimates of the relation between cash-flow and investment, based on neo-Keynesian assumptions of asymmetrical information and agency costs (cf. Fazzari, Hubbard & Petersen [1988]; Mairesse, Hall & Mulkay [2001]; Carpenter & Guariglia [2008]). The aim of this paper is to bring new perspectives on financial and productive investment decisions of the large firms within the framework of financialised capitalism (Aglietta & Breton [2001]; Boyer [2001]; Aglietta & Rebérioux [2004]), and on his financing way, resorting to data of group accounting over the 1989-2007 period (SBF 250 - Worldscope Base). This work follows a previous one with VECM modeling, carried out primarily on the basis of post-Keynesian assumption (cf. Godley & Lavoie, 2001-2002), but from national accounting data (Clévenot, Guy & Mazier, 2008).

The main lesson is the following one. First of all, we highlight a negative link between investment and financial profitability of the firms, as clarified by du Tertre & Guy (2008) starting from descriptive statistics relating to the same data. The financial investment (except Merger and Acquisition since the data are consolidated) does not enter directly in competition with productive investment, and rests mainly on leverage effect objectives and on return of the corresponding financial investments. The debt of the firms is also explained in particular by the pursuit of financial leverage effect. Lastly, it is the financing of external growth which seems to justify the shares issuance (cf. Toporowski [2000]).

1 Financialisation of firm's strategies: investments and financing

The traditional post-Keynesian function of investment at the basis of our study is

Kalecki's one, which establishes a positive link between productive investment and the increase in the rate of profit (Kalecki 1937, 1954). The principle of this profit accelerator is the following one: when the profits increase, some previously non-profitable investment plans become profitable. More recent theoretical models (Taylor 1985) introduce the rate of capacity utilisation, in order to test at the same time the profits and sales expectations (thus close to a demand accelerator). These theoretical relations can thereby be summarized as:

$$\frac{I}{K_{-1}} = f(\Delta R, U) \tag{1}$$

With $\frac{I}{K_{-1}}$ = rate of accumulation, I = Productive investment, K = stock of productive capital, R = $\frac{P}{K_{-1}}$, P = gross profit and U = Rate of capacity utilisation.

However, the macroeconomic report (Clévenot, Guy & Mazier, 2008) of a clear disconnection between profit and investment over the two last decades has led in wondering about the possibility of a new impact of finance on investment, and in particular for the great quoted groups. The question of the link between finance and investment was discussed many times. This link was first rejected by Modigliani and Miller (1958). However, the growing importance of the financial management of the firms' balance sheet tends to show the opposite. This theorem is however based on the assumption of perfect information, which will be called into question thereafter by the neo-Keynesian school in particular (Tobin & Brainard, 1968).

The theory of Tobin's Q, which remains based on this assumption of perfect information, supposes that firms arbitrate between productive investment and financial investment. This ratio reports the financial value of the firm to the value of its physical capital. There is then a positive relation between Tobin's Q ratio and productive investment. However, the empirical verifications are not very conclusive (cf. Ashworth & Davis, 2001). The assumption of an opposition between financial and productive investment poses actually a problem. Effectively, the determinants of these two behaviours are mainly the same ones. In order to study the links between finance and investment, we then resort to the post-Keynesian theories. First of all, according to Kalecki's principle of increasing risk (1943),

a firm takes risks more and more as it is involved in debt. Also, a negative link between debt ratio and productive investment is expected. So, we have a theoretical equation such as:

$$\frac{I}{K_{-1}} = f(\Delta R, \frac{L_{-1}}{P}, U) \tag{2}$$

With $\frac{L_{-1}}{P}$= solvency ratio. Given the theoretical difficulties raised above, the introduction of a Tobin's Q ratio seems problematic. Some post-Keynesian authors have recourse to it (Davidson 1972; Godley & Lavoie 2001-2002), which is not the case in this paper.

The main reference in terms of links between finance and investment corresponds here to Minsky's work on the Financial Instability Hypothesis (FIH, cf. Minsky 1986). According to this reasoning, in a financialised economy, the financial risk increases as the economy grows in period of strong expansion. One period of innovation implies an acceleration of investment. The increase in profits validates the investment plans and led to a rise in debt. The stock exchange valorisation of the firms is consequently reinforced, because of the leverage effect recourse. However, since profit expectations are reversed, whatever are the reasons, the illiquidity of the financial markets can induce an insolvency of the most speculative firms (Brossard 1998). These works can be connected to Aglietta's ones (2003). According to this last, three factors of financial fragility are combined today: a financial convention validating expectations of increasing profits, a reinforcement of the recourse to leverage effect, and myopia about the level of taken risk. During expansion periods, not only the operations of internal growth increase but also the operations of external growth (Mergers and Acquisitions). Indeed, this makes it possible for the firms to fulfil more quickly the requirements of return by shareholder through leverage effect, and can explain the disconnection between productive investment and the rate of profit.

In order to test a negative impact of a financial profitability norm which would be imposed on companies, we introduce the ROE (Return On Equity) into our equations, in the way of Boyer (2000). With the difference of Stockhammer (2004) or Van Treeck (2008), we do not use ratios relating to financial expenses, because the dividends in particular do not seem to be at the origin of the fluctuations of investment (du Tertre & Guy, 2008).

Moreover, these studies do not take into account financial profitability, which however seems the key variable on which the investors focus (Orléan, 1999; Aglietta & Breton, 2001) in order to make sure of a management of the firm to their advantage. To finish, the theoretical function of investment on which the econometric tests will be based:

$$\frac{I}{K_{-1}} = f(\Delta R, \frac{L_{-1}}{P}, ROE, U) \tag{3}$$

With ROE = financial profitability (return on equity, net income divided by common stock).

Concerning the financial investment, as explained above and starting from work of Aglietta (2003), the valorisation of the financial assets rests mainly today on external growth projects, based on a strong financial leverage. Thus, the development of Mergers and Acquisitions operations or of share buybacks shows how the groups became fully actors on financial markets (Plihon, 2002). However, in the group accounts used here, when a majority stake is acquired by companies, this stake is consolidated, as we will see later. Also, financial accumulation could be tested only through the acquiring of minority stakes (Ee). The behaviour of financial investment will be studied through the supposed positive role of the financial profitability requirements, but also by the positive role of the debt ratio directly expressing the recourse to the debt leverage. Interest rate is also introduced and can express two phenomena: a traditional negative effect of financing cost of investment, or a second negative effect of arbitrage between various financial investments:

$$\Delta Ee = f(ROE, R, \frac{L_{-1}}{P}, r) \tag{4}$$

With ΔEe = Financial accumulation and r apparent interest rate.

Considering theoretical assumptions relating to the investment behaviours mentioned above, the analysis of indebtedness is initially made through the recourse to a first approach, that of indebtedness norm. According to this analysis (Aglietta & Breton, 2001), the companies arbitrate between a high debt necessary to fulfil the shareholder requirements through the leverage effect and a weak debt desired by the banks in order to limit

the risks of insolvency. Also, interest rate will play a negative role and the financial profitability a positive one as an indicator of the convention of return established on financial markets. The theoretical equation also conforms to a second approach of credit demand and supply such as defined in various models of which that of Taylor (2004). The credit demand depends indeed negatively on the interest rate and positively on the demand for investment (on this last point, see Charles [2005]):

$$\Delta \frac{L}{OF} = f(\frac{I}{K_{-1}}, r, ROE) \tag{5}$$

With $\frac{L}{OF}$ indebtedness ratio.

Lastly, several kinds of equations are proposed about the issues of shares: a simple proportional link between productive investment and share issuance (Godley & Lavoie [2001-2002]; Taylor [2004]); a constant ratio between the volume of issued equities and the stock of fixed assets (Dos Santos & Zezza, 2004) corresponding to the neo-Keynesian principle of equity rationing. We propose here an alternative specification. Given the firms' need for conforming to the shareholder requirements through the financialisation of their strategies as explained above, the assumption according to which these projects are often financed by the quoted groups on the basis of share issuance will be tested (cf. Toporowski [2000]; Lordon [2008]).

More precisely, the firms undergo a financial constraint which can be described by the term of "good practices of management" (Batsch, 2006): to reach the norms of financial return expected by the markets, they become particularly demanding on the level of return on their investments, and make sure to maximize the redistribution of cash-flow to the shareholders, in particular by a rigorous control of invested capital. Thus, in growth period, the firms would be incited to arbitrate between the maximization of the financial leverage effect as explained above, and the issuance of equities. This is done in order on the one hand to guarantee the solvency of the firms and on the other hand to obtain sufficient funds to throw into investments projects and in particular into Merger and Acquisition operations (Share Exchange Offer for example). In period of indebtedness reduction, the

groups would tend on the contrary to limit their equity issuance, so that the cash-flow remaining after the repayment of a part of the debt will be focused on a few shareholders. Also, an increase in the debt ratio should tend to have a positive impact on the equity issuing and conversely:

$$\Delta E = f(FA, \frac{L}{K}) \tag{6}$$

With FA = Financial investment in operations of Mergers and Acquisitions.

2 Methodology and Tested Equations

The basic equations which will be tested are the following ones. First of all, concerning the productive investment, we start from this specification:

$$\Delta Log\ Kc = a_0 + a_1 \Delta Log\ P + a_2 \frac{L_{-1}}{P} + a_3 \Delta Log\ r + a_4 \Delta Log\ ROE \tag{7}$$

With Kc productive capital; P gross profit; solvency ratio (L net financial debt), r apparent nominal interest rate and ROE financial profitability. It is thus, as explained above, a profit-accelerator type of investment equation a la Kalecki (1954).

Then, the following equation is tested for financial investment.

$$\Delta Log\ Ee = a_0 + a_1 Log\ r + a_2 Log\ ROE + a_3 \Delta \frac{L}{L + OF} \tag{8}$$

With Ee financial assets held (of which minority interests) and $\frac{L}{L+OF}$ debt ratio.
The equation (8) makes it possible to the test role which the trend of the apparent interest rate plays on financial investment through an arbitrage between financial assets, or as financing cost of investment. The debt ratio and the financial profitability are introduced to test the hypothesis about financial leverage effect. The coefficients are expected positive. The debt ratio in the equation (9) allows highlighting the same phenomenon. The equation of debt has the following form:

$$\frac{L}{OF} = a_0 + a_1 Log\ r + a_2 Log\ ROE + a_3 \Delta \frac{L}{L + OF} \tag{9}$$

With debt ratio (debt leverage stricto sensu), and K productive capital (tangible and intangible capital). We wish to show in particular the link between the trend of financial

profitability and the indebtedness, in order to support the assumption according to which the research of higher financial profitability leads the firms to increase their debt, here again in order to activate the financial leverage effect.

Lastly, the issues of shares will be estimated starting from this specification:

$$\Delta Log\ E = a_0 + a_1 \Delta Log\ Ki + a_2 \frac{L}{K_{-1}} \tag{10}$$

With Ki intangible capital and $\frac{L}{K_{-1}}$ indebtedness ratio. We postulate here that the aim of the share issuances is mainly to finance Mergers and Acquisitions. To highlight this phenomenon, we test the significativity of the link between intangible capital and equity issuing.

The various equations presented above can then be rewritten in the more general shape of panel equations. This gives as follows:

$$y_{ij} = \alpha X_{it} + v_i + v_t + e_{it} \tag{11}$$

With i the corresponding individual or firm, T the period, y the explained variable for each equation (7) to (10), X the whole of the explanatory variables, vi individual fixed effect, vt a temporal effect and eit the error term. We then have recourse to a Generalized Method of Moments (GMM) estimator in first difference. This makes it possible to eliminate the fixed individual effects. One then obtains the next global equation in first difference:

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$$\Delta y_{ij} = \alpha \Delta X_{it} + \Delta v_t + \Delta e_{it} \tag{12}$$

One can then instrument the explanatory variables of the equation (12) by their level values lagged one period or more (Arellano & Bond [1991]; Kpodar [2007]). The variables

chosen here, supposed slightly exogenous, are instrumented by their values lagged once or more. To then ensure models validity, two tests are used. These ones correspond to the second-order serial correlation of Arellano & Bond (m_2 test) and of the Hansen test for the validity of the lagged variables used as instruments (J-test).

For all specifications, sectorial dummies are introduced in order to test the possible presence of sectorial effects and the robustness of the estimations. The 8 sectors tested corresponds to the SIC classification[1] (Standard Industrial Classification) disposable in Worldscope Database, except of course of the financial sector because of the composition of the sample. The chosen reference sector is Mining Industry (SIC 1).

3 Main Characteristics of the Data and Descriptive Statistics

The data used here result from the Worldscope database (Thomson Financial). These are data of group accounts, which are great non-financial groups quote on the French SBF 250 Index at the end of 2008. We however excluded France Telecom and Vivendi from the sample after a descriptive analysis of the data. Indeed, the evolution of the debt of these two groups tends to distort the global analysis which arises from the remainder of the sample. This last finally consist of 215 firms, relates to the 1989-2007 period, and is not balanced. The tests are carried out starting from the software Stata 10.0, which is able to manage unbalanced panels[2]. In order to exclude uncommon shocks, very occasional, and specific to few firms, we eliminate on a case-by-case basis some data considered as not very significant in our sample. Indeed, three main issues can arise. First of all, the gross profit P can in some cases so strongly fall that one will have for example a solvency $\frac{L_{-1}}{P}$ extremely high and thus not very significant for the overall analysis. Then, one can have equity capital in freefall over one year, because of an exceptionally negative net income. One consequence in particular may be a financial profitability ratio abnormally

[1] See sectors' names and corresponding label in the Annex.

[2] The function used for the tests is the xtabond2 command developed by Roodman (2003).

high. Lastly, the debt of the firms is a net financial debt, i.e. decreased of the short-term investments, according to the admitted definition of the total debt in functional balance-sheet (Vernimmen, 2005). This implies for some cases a debt close to 0, and consequently a disproportionate apparent interest rate. Descriptive statistics of the final database used are presented in Table 1.

Table 1: Descriptive statistics

	Means	**Standard deviations**	**Number of observations**
K	2669.137	8619.896	2983
P	500.577	1598.459	2982
Y	1400.389	3039.6	2533
$L/(L+OF)$	0.176	3.324	2977
L/OF	0.550	2.063	2978
L_{-1}/P	1.381	6.064	2849
L/K_{-1}	0.202	1.582	2711
ROE	0.189	0.434	2884
r	0.043	0.343	2885
Ee	469.438	1671.309	2982
E	813.202	3202.036	2982

Notes: The first column reports sample means. Standard deviations are in second columns. The studied period is 1989-2007.

The data used come either from balance sheets or of the income statement of the groups. We do not use the data coming from the cash-flow statements in this study because of the rules according to which they are developed. Indeed, the cash-flow statements gather only the operations giving indeed place to a flow of funds. For example, any Merger or Acquisition financed by equity issuance will be eliminated from this kind of account. This is why, regardless investment and financing flows, these tests are made from variation of balance sheet. It is thus the case in particular for the estimate of productive investment, carried out starting from the variations of the tangible capital stock Kc, or for the estimates about share issuance (variations of the stock of issued equities E).

Eventually, a distinction is made between tangible and intangible fixed assets (respec-

Table 2: Determination of the variables and correspondences with Worldscope database

Variable	Corresponding Worldscope Data
K	02501 Property plant and equipment - Net + 02652 Total Other assets - 02648 Other assets
Kc	02501 Property plant and equipment - Net
Ki	02652 Total Other assets - 02648 Other assets
P	07240 Net Sales or Revenues + 01051 Cost Of Goods Sold - 01101 Selling, General and Administrative Expenses - 01020 Other Operating Expenses
Y	P + 01084 Staff Costs
L	- 02001 Cash and Short term Investment + 03051 Short term Debt and Current portion of long term debt + 03251 Total Long Term Debt + 18183 Deferred Taxes Credit + 03273 Other Liabilities
OF	03480 Common Stock + 03481 Capital Surplus + (03493 Other Appropriated Reserves + 03497 Unrealized Foreign Exchange Gain/Loss) + 03495 Retained Earnings + 03499 Treasury Stock + 03401 Non Equity Reserves + 03061 Dividends Payable + 03260 Provision for risk and charge + 03426 Minority Interest + 03451 Preferred Stock
ROE	(P - 01151 Depreciation, Depletion and Amortization Expenses - 01149 Amortization Of Intangible - 01701 Preferred Dividend Requirements + 01253 Extraordinary Credit Pretax + 01262 Other Income/Expenses Net - 01254 Extraordinary Charge Pretax - 01301 Reserves Increase/Decrease + 01505 Discontinued Operations + 01503 Equity In Earnings + 01267 Pretax Equity In Earnings + 01601 Extraordinary Items & Gain/Loss Sale Of Assets + 01504 After Taxes Other Incomes Or Expenses) / FP
r	(01251 Interest Expense On Debt - (01016 Interest Income + 01255 Interest Capitalized))/L
Ee	02256 Investment in Unconsolidated Subsidiaries + 02250 Other Investments + 02258 Long Term Receivables + 02648 Other assets
E	03480 Common Stock + 03481 Capital Surplus

Notes: In right column are presented the corresponding Worldscope items and the associated number.

tively Kc and Ki), in order to take into account one of the characteristics of the group accounts. Indeed, in consolidated accounts, when Merger and Acquisition operations arise, the new entity acquired by the group is integrated (overall or not) in the perimeter of this one. In other words, a goodwill is recorded on the asset side, i.e. the difference between on the one hand the cost of acquisition of the titles, and on the other hand the difference

between the estimated fair value of assets and liabilities except for common stock, balanced by the quota of the company acquired by the parent company (Bachy & Sion [2005]; Colinet & Paoli [2005]). This goodwill is recorded in the intangible assets item, as this last element takes a very different signification from the notion of intangible assets within the meaning of national accounting (Depoutot, 2002). The intangible capital is thus used here as a proxy for external growth activities, supposed as being mainly financed by the issue of shares. The correspondence between all variables used in this work and the worldscope database are presented in Table 2.

4 Tests Results

4.1 Productive Investment

Table 3 presents the results of the estimates of the investment equations, based on the equation (7). The equations (a) and (b) are directly derived from this last. The assumption of a profit accelerator seems checked since the coefficient connecting the variation of the gross profit and the capital accumulation is very significant. It is worth noting that the variation of financial profitability of the firms influences negatively the investment, which thus tends to confirm the thesis according to which the impact of finance on firms' activities acts through it.

By seeking an increase in financial profitability for the shareholders, the firms exert an increasing pressure on the cost of the capital, which weighs negatively on the investment. The pursuit for a strong and positive financial leverage effect to satisfy the shareholder requirements about "good practices of management" leads also them to increase their debt, which generates an other side of the financial constraint on the investment. Indeed, this led in particular the groups to an increasing risk (Kalecki's principle of increasing risk) because this increase of debt ratio might induce financial fragility. One can then explain the negative link between the solvency ratio and investment. Lastly, the variations of interest rate have a negative impact on investment too, which corresponds to the Keynesian

Table 3: Alternative specifications of productive investment's determinants

Dependant variable: $\Delta Log\ Kc$	**(a)**	**(a) with sectorial dummies**	**(b)**	**(b) with sectorial dummies**	(c)	**(c) with sectorial dummies**
$\Delta Log\ P$	0.219* (0.047)	0.230* (0.047)	0.218* (0.068)	0.223* (0.069)	-	-
$\Delta Log\ Y$	-	-	-	-	0.431* (0.089)	0.434* (0.087)
L_{-1}/P	-0.011** (0.007)	-0.010*** (0.005)	-	-	-0.005** (0.002)	-0.005** (0.002)
$\Delta Log\ ROE$	-0.087* (0.006)	-0.088* (0.022)	-0.086* (0.019)	-0.087* (0.020)	-	-
$\Delta Log\ r$	-	-	-0.029* (0.010)	-0.029* (0.010)	-	-
$sic0$	-	0.078* (0.028)	-	0.102* (0.017)	-	0.019 (0.020)
$sic2$	-	-0.002 (0.006)	-	-0.009 (0.007)	-	-0.005 (0.005)
$sic3$	-	-0.003 (0.006)	-	-0.011* (0.004)	-	-0.004 (0.006)
$sic4$	-	0.016 (0.011)	-	0.002 (0.010)	-	0.012 (0.012)
$sic5$	-	0.012 (0.011)	-	0.003 (0.003)	-	-0.016*** (0.002)
$sic7$	-	0.011 (0.014)	-	0.003 (0.013)	-	0.002 (0.008)
$sic8$	-	0.007 (0.024)	-	-0.015 (0.032)	-	-0.009 (0.016)
$sic9$	-	0.013 (0.083)	-	0.006 (0.083)	-	-0.036 (0.044)
Number of firms	207	207	189	189	208	208
Sample size	1896	1896	1410	1410	2029	2029
m_2	1.28	1.29	1.56	1.57	1.59	1.60
(critical prob.)	(0.199)	(0.196)	(0.118)	(0.116)	(0.112)	(0.110)
$J(p-value)$	120.51	120.52	106.25	102.75	125.25	126.53
(critical prob.)	(0.143)	(0.143)	(0.367)	(0.461)	(0.067)	(0.058)

Notes: The figures reported in parentheses are asymptotic standard errors. m_2 corresponds to the Arellano & Bond test for second-order serial correlation under the null hypothesis of no serial correlation. The J-statistic corresponds to the Hansen test of the overidentifying restrictions, under the null hypothesis of instrument validity. Concerning Eq(a), $\Delta Log\ P$ is lagged one and two times,L_{-1}/P one to four times and $\Delta Log\ ROE$ one time. In (b), $\Delta Log\ P$ is lagged from one to four times, $\Delta Log\ ROE$ one time and $\Delta Log\ r$ from one and two times. In (c), $\Delta Log\ Y$ is lagged from one to four times and L_{-1}/P from one to three times. For each specification, a second equation is proposed, with sectorial dummies. The sic_j variables correspond to the sectors considered by the SIC classification (sic1 is the reference sector and sic6 is not introduced because it corresponds to the financial sector). *Indicates significance at the 1% level. **Indicates significance at the 5% level. ***Indicates significance at the 10% level.

principle of arbitrage between liquidity preference and investment in fixed assets. The equation (c) is an alternative formulation of the investment equation with a demand-accelerator close to Samuelson's one. The J and m_2 statistics point respectively that the instruments are valid and that the serial correlation of the residuals is excluded. These GMM models seem thus acceptable.

Table 4: Alternative specifications of financial investment's determinants

Dependant variable: $\Delta Log\ Ee$	**(d)**	**(d) with sectorial dummies**	**(e)**	**(e) with sectorial dummies**
$Log\ r$	-21.078*** (11.036)	-21.209*** (10.885)	-	-
$\Delta Log\ ROE_{-1}$	-	-	107.903** (41.829)	63.901** (29.410)
$\Delta(L/(L+OF)$	-	-	0.138** (0.076)	0.126** (0.059)
$sic0$	-	-19.037* (19.096)	-	-13.797 (9.308)
$sic2$	-	-0.111* (19.307)	-	20.444 (12.774)
$sic3$	-	-3.111* (12.130)	-	2.596 (8.919)
$sic4$	-	5.450 (13.246)	-	-0.715 (14.254)
$sic5$	-	16.035 (14.592)	-	16.930 (11.422)
$sic7$	-	4.046 (5.704)	-	2.029 (5.135)
$sic8$	-	2.155 (3.554)	-	3.304 (5.806)
$sic9$	-	-5.348 (12.377)	-	25.070 (20.522)
Number of firms	199	199	209	209
Sample size	1738	1738	2049	2049
m_2	-1.52	-1.52	-1.55	-1.51
(critical prob.)	(0.128)	(0.128)	(0.121)	(0.132)
$J(p-value)$	34.42	33.79	60.49	57.41
(critical prob.)	(0.849)	(0.867)	(0.831)	(0.534)

Notes: In Equation (d), $Log\ r$ is lagged from one to three times. In Eq(e), $Log\ ROE_{-1}$ is lagged from one to four times and $\Delta(L/(L+OF))$ one time. *Indicates significance at the 1% level. **Indicates significance at the 5% level. ***Indicates significance at the 10% level.

4.2 Financial Investments

Table 4 shows in particular the role of the return of various financial assets in firm's financial investments, except for Merger and Acquisition. These investments correspond in a great portion to financial assets acquisitions in terms of minority interests, i.e. which cannot be consolidated. One then notes the importance of the increasing pressure on the financial profitability of the firms, exerted by shareholding. Indeed, the trend of apparent interest rate impacts negatively the financial investment. One can deduce from it that confirms the idea of a negative impact of a financing cost, but that this is also a strong support to the hypothesis of the pursuit for a positive leverage effect (cf. equation (d)). The firms which wish to be involved in debt to increase the common equity return, via the return of the bought equities, do it all the less since the debt cost is strong. Consequently, the rise of the debt ratio is positively connected to financial accumulation (Equation (e)), as a financing source for this kind of activities. Lastly, an upward trend of financial profitability logically implies an increase in financial accumulation since the return of this kind of asset increases. The coefficient is positive, as expected. There still, the J and m_2 statistics result in validating the GMM models.

4.3 Indebtedness Function

Concerning the equations of debt, one finds still the expected results (Table 5). The two equations (equation (f) and equation (g)) show a negative link between the variation of apparent interest rates and the debt. In addition, they show also the positive role played by the trend of financial profitability. Thus, with the arrival of financialised capitalism, the considerable level of financial profitability required by the shareholders and, in addition, actually observed (Plihon [2002]; du Tertre & Guy [2008]), generates for the firms a clear tendency to exploit the leverage effect via an increase in debt leverage stricto sensu, namely $\frac{L}{OF}$.

Lastly, the debt finances the whole fixed assets K (tangible and intangible), one thus obtains a positive relation between the stock of fixed assets and the debt ratio tested. These equations thus correspond to hybrid ones mixing some supply and demand credit

Table 5: Alternative specifications of indebtedness equations

Dependant variable: L/OF	**(f)**	**(f) with sectorial dummies**	**(g)**	**(g) with sectorial dummies**
$Log\ K$	0.255**	0.428**	0.255***	0.438**
	(0.124)	(0.172)	(0.130)	(0.179)
Δr_{-1}	-0.020***	-0.022**	-	-
	(0.001)	(0.001)		
$\Delta Log\ ROE_{-1}$	0.089**	0.094**	0.090***	0.094**
	(0.049)	(0.047)	(0.048)	(0.047)
$sic0$	-	-0.399**	-	-0.402**
		(0.159)		(0.164)
$sic2$	-	-0.035	-	-0.035
		(0.025)		(0.025)
$sic3$	-	-0.034	-	-0.034
		(0.030)		(0.030)
$sic4$	-	-0.087	-	-0.090
		(0.068)		(0.072)
$sic5$	-	-0.023	-	-0.027
		(0.038)		(0.038)
$sic7$	-	-0.048	-	-0.050
		(0.040)		(0.041)
$sic8$	-	0.278	-	0.279
		(0.445)		(0.444)
$sic9$	-	0.212	-	0.207
		(0.076)		(0.080)
Number of firms	202	202	202	202
Sample size	1743	1743	1750	1750
m_2	-0.74	-1.09	-0.73	-1.08
(critical prob.)	(0.462)	(0.277)	(0.465)	(0.281)
$J(p-value)$	118.04	120.96	85.60	80.76
(critical prob.)	(0.354)	(0.287)	(0.131)	(0.224)

Notes: In (f), $LogK$ is lagged from one to four times, and $Log\ ROE_{-1}$ is lagged one time and Δr_{-1} from one to three times. In (g), $Log\ ROE_{-1}$ is lagged one time, and $LogK$ from one to four times. *Indicates significance at the 1% level. **Indicates significance at the 5% level. ***Indicates significance at the 10% level.

elements. The J and m_2 statistics fail to reject the null assumptions of overidentifying of the variables and of autocorrelation of the residuals, the models are consequently accepted.

4.4 Equity issuing

To finish, the equations of share issuance presented in Table 6 confirm here the two

Table 6: Alternative specifications of equity issuing

Dependant variable: $\Delta Log\ E$	**(h)**	**(h) with sectorial dummies**	**(i)**	**(i) with sectorial dummies**
$\Delta Log\ Ki$	0.167*	0.158*	0.271*	0.251*
	(0.059)	(0.053)	(0.096)	(0.087)
$(L/K)_{-1}$	-	-	0.057**	0.043**
			(0.025)	(0.022)
$sic0$	-	-0.141***	-	0.235*
		(0.084)		(0.085)
$sic2$	-	0.001	-	-0.019**
		(0.011)		(0.008)
$sic3$	-	-0.059	-	-0.078
		(0.052)		(0.065)
$sic4$	-	0.019	-	-0.022
		(0.019)		(0.025)
$sic5$	-	-0.024***	-	-0.039***
		(0.013)		(0.022)
$sic7$	-	-0.004	-	-0.006
		(0.010)		(0.011)
$sic8$	-	-0.025	-	-0.029
		(0.034)		(0.052)
$sic9$	-	0.524	-	0.498
		(0.400)		(0.368)
Number of firms	212	212	208	208
Sample size	2484	2484	2227	2227
m_2	0.87	0.89	1.24	1.26
(critical prob.)	(0.462)	(0.277)	(0.216)	(0.208)
$J(p-value)$	54.06	52.03	47.24	46.84
(critical prob.)	(0.142)	(0.190)	(0.216)	(0.281)

Notes: In (h), *Log Ki* is lagged from one to three times. In (i), *Log Ki* is lagged once and $(L/K)_{-1}$ is lagged from one to two times. *Indicates significance at the 1% level. **Indicates significance at the 5% level. ***Indicates significance at the 10% level.

assumptions of the equation (10). First of all, a debt growing led the firms to increase their financing by equities, i.e. in order to limit the debt ratio during consequent Merger and Acquisition periods, in spite of the objectives of high ROE, and because of the huge needs for funds. Then, the issues of shares meet certainly the financing need of capital accumulation, but we highlight here in particular the financing of the intangible capital. In their model, starting from the Kaldor's equation (1966), Lavoie and Godley (2001-2002) postulate that these issuances are proportional to the accumulation of fixed assets during

the period. They specify however that this formulation seems to them far too simplifying. Following Toporowski (2000) or Lordon (2008), we work on the assumption that these are Mergers and Acquisitions, i.e. operations of external growth, which are mainly financed by issue of shares. Through the consolidated balance-sheets, the means of testing such a relation, as explained above, is to retain as a substitute variable the accumulation of goodwill, itself recorded in intangible assets item. The coefficient obtained is positive and very significant. The J and m_2 statistics lead us to validate once more the models.

Conclusion

The return of Financial power has thus very clear consequences on the financialisation of the companies' strategies, whether it concerns their investment plans or their financing decisions. The firms, and in particular the great quoted groups, must fulfil the requirements of financial return established by convention on financial markets. We wished to check these assertions, based on post-Keynesian and Regulationnists assumptions, starting from the consolidated accounts of groups which are member of the SBF250 French Index. These accounts and the resulting tests bring new lessons, compared to the studies on French firms usually carried out from the national accounts of INSEE, as well as confirmations. They make it possible to check that the norms of financial profitability have effectively a negative impact on productive investment for these groups, as well as the very positive impact of these norms through financial leverage on financial investment and debt. This confirms the reality of an endogenous financial fragility in period of strong expansion. Lastly, these tests allow showing that the issues of shares respond to two particular constraints: to finance the external growth considered as necessary to a fast increase in financial profitability, and to limit indebtedness when it grows in such way that a risk of insolvency could appear.

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Annex - The Standard Industrial Classification used in Worldscope

Table 7: SIC Codes used in the tests and definitions

SIC Code	**Corresponding Sector**	**Number of groups**
*sic*0	Agriculture and Fishing	1 group
*sic*1	Mining Industry	11 groups
*sic*2	Building	41 groups
*sic*3	Industry	49 groups
*sic*4	Transportation and Communication	28 groups
*sic*5	Trade	30 groups
*sic*7	Other Services	38 groups
*sic*8	Health Services	15 groups
*sic*9	Public Administration	2 groups